



Obninsk – 2000

# **Overview of Russian INSC Programs and Objectives**

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Fifth International  
Information Exchange Forum  
Safety Analysis for NPPs of  
VVER and RBMK Types

(FORUM – 2000)

16-20 October, 2000  
Obninsk, Russian Federation



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## **Foundation of the INSCs**





**Autonomous Non-Commercial Organization  
International Nuclear Safety Center  
of Russian Minatom  
(RINSC)**



## **Useful functions which the RINSC can perform for Minatom**

- \* Creation of an informational and analytical Knowledge Base on the results of the Ministry R&D performed including international projects relevant to the nuclear safety
- \* Creation of an informational database of test facilities and computer codes available from MINATOM enterprises
- \* Assistance in improvement and development of the methods and techniques for the nuclear facilities safety analysis and creation of the corresponding databases important to safety
- \* Representation of MINATOM as a user of foreign computer codes and provision of assistance to enterprises of MINATOM in the adaptation and use of these codes
- \* International coordination and cooperation of work in the field of nuclear technology and nuclear safety



## **Goal and Tasks**

### **Main Goal – Promotion of the following activities for MINATOM:**

- \* Enhanced co-ordination of the highest directions of research for civilian nuclear facility safety
- \* Co-ordination of activities with other countries in the field of nuclear safety technology in Russia
- \* Enhancement of efficiency of international co-operation and co-ordination in the field of nuclear safety technology



## **Position of the RINSC in Minatom Structure**

*T*he Center is accountable to the Department of Nuclear Power for the lines of its technical issues, and to the Department of International and External Economical Co-operation – for its international relations.

The Coordinating Committee of the Center includes the leaders of the project member – companies. The Committee is chaired by the Minister, and the Center's Director acts as the Scientific Secretary. The Coordinating Committee confirms the subjects of the projects and considers the obtained results.

The RINSC is under the general direction of RF Minister for Atomic Energy.

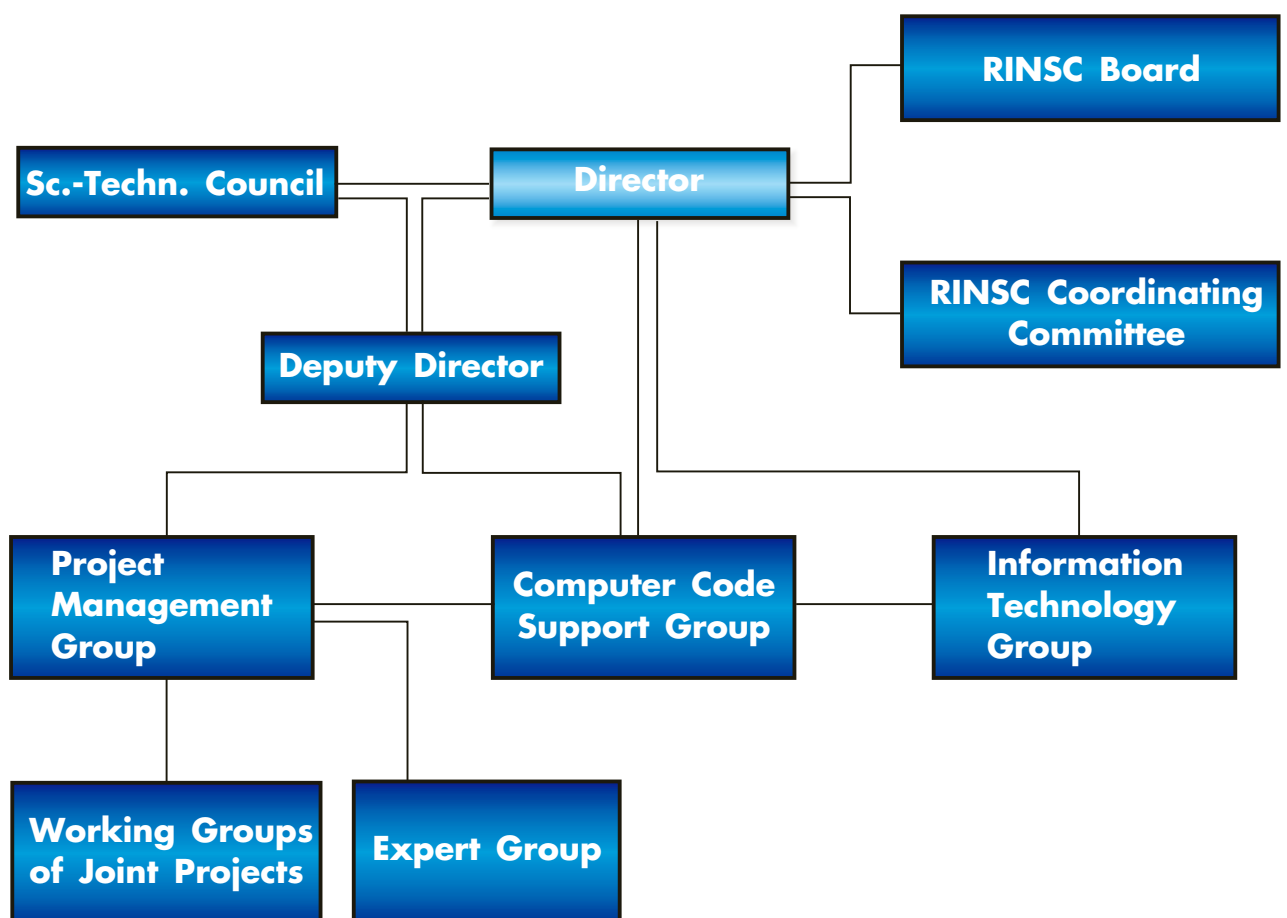


## **Brief Information on RINSC**





## Organizational Structure of the RINSC





## Members of the RINSC Coordinating Council

<i>E. Adamov</i>	<i>Chairman, Minister</i>
<i>B. Nigmatulin</i>	<i>Vice-chairman, Deputy Minister</i>
<i>S. Bugaenko</i>	<i>Sci.Secretary, RINSC, Director</i>
<i>V. Vinogradov</i>	<i>Deputy Minister</i>
<i>A. Agapov</i>	<i>Head of Department</i>
<i>N. Ermakov</i>	<i>Head of Department</i>
<i>M. Ryzhov</i>	<i>Head of Department</i>
<i>V. Shidlovsky</i>	<i>Head of Department</i>
<i>Yu. Sokolov</i>	<i>Head of Department</i>
<i>A. Abagyan</i>	<i>VNIIAES, Director</i>
<i>E. Avroriv</i>	<i>VNIITF, Director</i>
<i>V. Blinkov</i>	<i>ENITS, Director</i>
<i>L. Bolshov</i>	<i>IBRAE, Director</i>
<i>V. Vasilenko</i>	<i>NITI, Director</i>



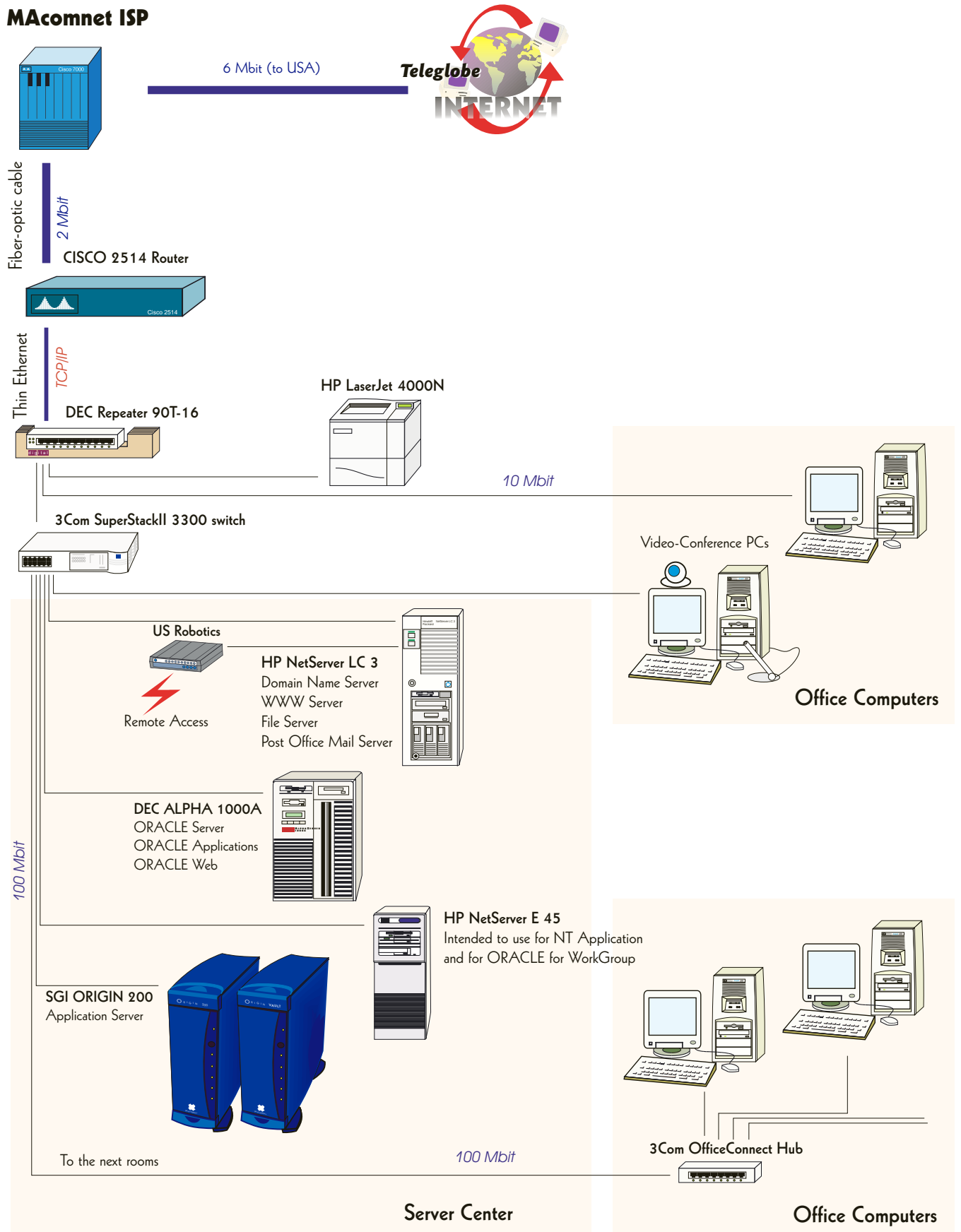
## **Members of the RINSC Coordinating Council** (*Cont.*)

<i>B. Gabaraev</i>	<i>NIKIET, Director</i>
<i>B. Gordon</i>	<i>NTC GAN, Director</i>
<i>A. Grachev</i>	<i>NIIAR, Director</i>
<i>Yu. Dragunov</i>	<i>OKB GP, Director</i>
<i>A. Zrodnikov</i>	<i>FEI, Director</i>
<i>R. Ilkaev</i>	<i>VNIIEF, Director</i>
<i>V. Safutin</i>	<i>VNIPIET, Director</i>
<i>N. Kuharkin</i>	<i>IAR RNC KI, Director</i>
<i>V. Lebedev</i>	<i>LAES, Director</i>
<i>A. Malyshev</i>	<i>AEP, Director</i>
<i>V. Pismenny</i>	<i>TRINITI, Director</i>
<i>M. Solonin</i>	<i>VNIINM, Director</i>
<i>K. Frolov</i>	<i>IMASH, Director</i>

# RINSC LAN

## Structure

### MAcomnet ISP

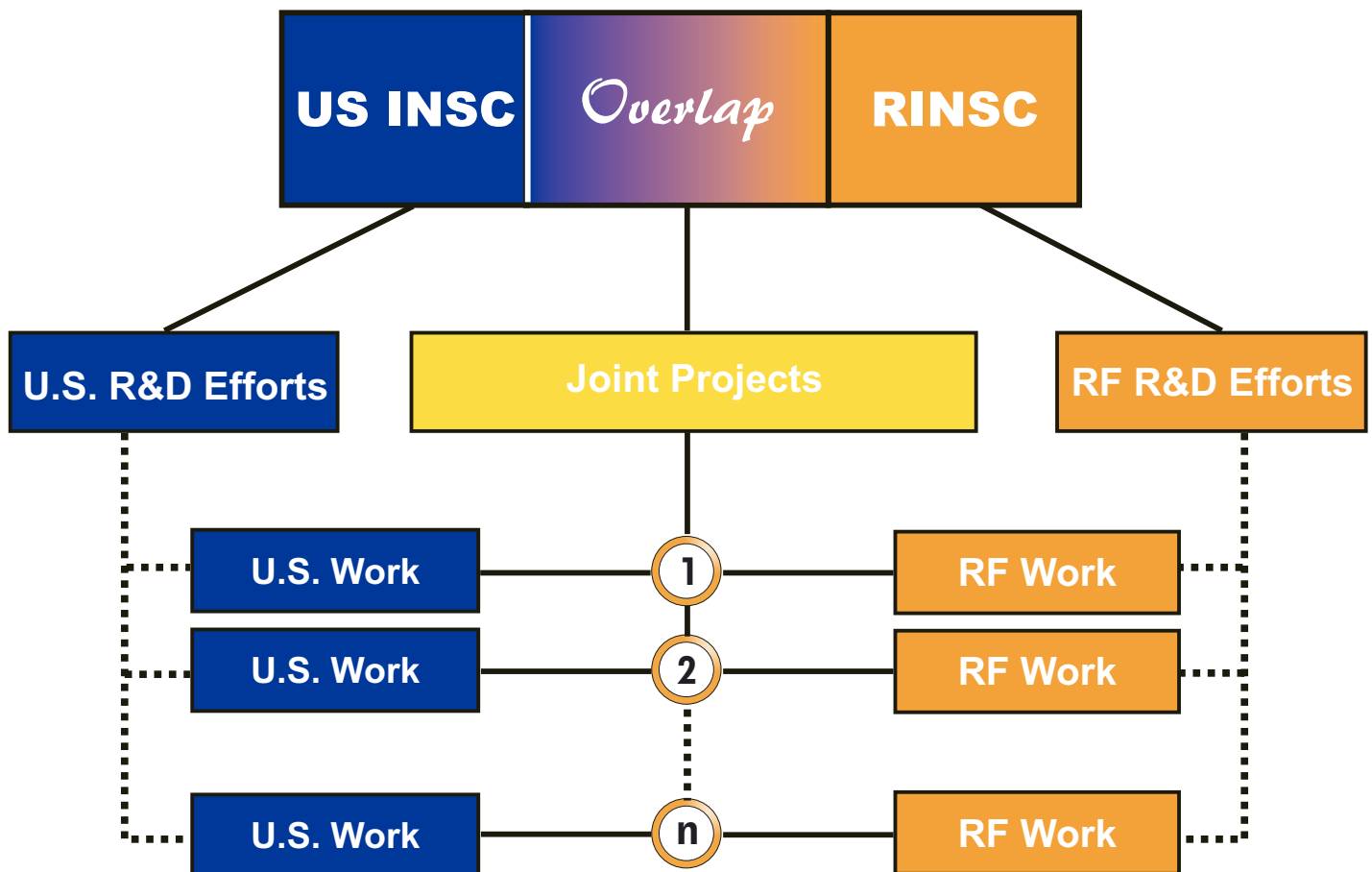




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# **Joint Activities of U.S. and R.F. INSCs**

## INSCs Work Structure





## **Development and Support Computing System**

- \* Representation of Minatom as a user of foreign computer codes
- \* Assistance to enterprises of Minatom in adaptation and use of these codes
- \* Code Configuration Control
- \* Remote access for INSC partners for information sources
- \* Remote computing for specialists to conduct computer programming, code modelling and analysis
- \* Providing of training courses for foreign codes



## **Native RINSC R&D Current Efforts**





RINSC's Program of R&D on 2000 –  
2002 is Approved by Minister of RF on  
Atomic Energy

## **Main Directions**

1. Improvement & Development of Nuclear Safety Analysis & Methodology
2. Creation of Nuclear Safety Data Bases
3. International Science Technical and Nuclear Safety Co-operation

## **Main Native Projects**

- \* Creation of Data Base on Physical-Mechanical Properties of WWER Pressure Vessel Materials
- \* Development of Model Data Base Needed for Component and Power Unit Safety Evaluation
- \* Development of Risk Evaluation Methodology of Damages and Their Preclusion for Vessel and Pipelines of NPPs with Consideration of Aging and Technological Inheritance Effects
- \* Development of Generic Accident Management Guidelines
- \* Development of Data Base for Verification of Foreign Computer Codes as Reference ones
- \* Carrying Out of the INSC of Russian Minatom Functions



## **Opportunities for New Safety Activities Among the INSCs**



## **Opportunities for New Safety Activities Among the INSCs**

1. BN-350 Decommissioning
2. IGNALINA NPP - Decommissioning
3. ISA Analysis Database (DB)
4. Preparation of a Database and a Comprehensive Plan for the Disposition of Spent Nuclear Fuel and Radioactive Wastes Management from Russian Power Reactors.



## **BN-350 Decommissioning Support**

### **Proposed Activity:**

We recommend a joint activity to prepare a database of relevant design and plant information that will be used in the planning and licensing of the BN-350 decommissioning activities

The contents of this database would include:

- current status of components and structures of the BN-350 reactor;
- current status of decommission project;
- spent fuel status;
- radioactive waste status;
- applicable regulations in Kazakhstan;
- other factors related to the decommissioning of the BN-350 reactor.

The main tool for preparing the database will be ORACLE code.



## **IGNALINA NPP – Decommissioning Support**

### **Proposed Activity:**

We suggest a joint activity to prepare and support a database for the decommissioning of the Ignalina RBMK-1500.

The contents of this database would include:

- design information for the Ignalina NPP;
- current status of components and structures of the Ignalina NPP;
- current plans and status of the decommissioning project;
- spent fuel status;
- radioactive waste status;
- applicable regulations in Lithuania;
- plans of future activities.

The main tool for preparing the database will be ORACLE code.



## **ISA Analysis Database**

### **Proposed Activity:**

The contents of the database would include:

- current status of NPP-unit at the moment of the providing ISA;
- current status of ISA project;
- safety conception;
- site description;
- main results of safety analysis (DSA and PSA)
- program of the unit modernization and reconstruction;
- current status of unit modernization and reconstruction;
- joint estimation of current and future level safety NPP unit;
- plans of future ISA activity.

The main tool for preparing the database will be the ORACLE code which opens the possibility of further analysis to reduce costs and improve safety.



## **Proposals on Directions of Feasible International Collaboration on Field of Nuclear Safety Enhancement**

1. Joint Projects on Themes of the Safety Research Plan for Russian NPPs
2. Collaboration on Topics of the Running Joint Projects
3. Lifetime Management of NPPs
4. Severe Accident Analysis and Management
5. Improvement and Verification of Computer Codes
6. Creation and Development of Data Bases
7. Comparative Analysis of National Nuclear Rules and Standards